

The Claims

What is claimed is:

5 1. A stable oil for incorporation in a food,
nutritional, pharmaceutical or cosmetic product, and
containing one or more long-chain polyunsaturated fatty
acids obtainable from a biomass, in the form of
10 triacylglycerols serving both as transfer medium for
the long-chain polyunsaturated fatty acids from the
biomass and as carrier for the long-chain
polyunsaturated fatty acids in the food, nutritional,
pharmaceutical or cosmetic product and into which the
15 long-chain polyunsaturated fatty acids are incorporated
such that at least 60% by weight of the long-chain
polyunsaturated fatty acids present in the biomass are
present in the oil but that less than 10% of phosphorus
that is present in the biomass is present in the oil,
20 so that the oil does not require purification prior to
use.

2. The stable oil according to Claim 1, in which
the long-chain polyunsaturated fatty acid is
arachidonic acid, dihomogammalinolenic acid,
25 eicosapentaenoic acid or docosahexaenoic acid.

3. The stable oil according to Claim 2, in which
the long-chain polyunsaturated fatty acid is
arachidonic acid.
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4. The stable oil according to Claim 2, in which
the long-chain polyunsaturated fatty acid is
docosahexaenoic acid.

35 5. The stable oil according to Claim 1, in which
the carrier oil is high oleic acid sunflower oil
(HOSFO), sunflower oil (SFO), soya bean oil, palm olein
or a medium-chain triacylglycerol (MCT, containing

essentially triacylglycerols of saturated C₈-C₁₀ fatty acids).

6. The stable oil according to Claim 1, wherein
5 the stable oil contains no more than 10% by weight of LC-PUFAs.

7. A process for preparing a stable oil for
incorporation into a composition of a food,
10 nutritional, pharmaceutical or cosmetic product, which
comprises bringing a carrier oil into contact with a
biomass obtained from the culture of a microorganism
containing one or more long-chain polyunsaturated fatty
acids, so as to transfer the long-chain polyunsaturated
15 fatty acid(s) in the form of triacylglycerols to the
carrier and form a biomass residue, separating the oil
containing the fatty acid(s) from the biomass residue,
and then deodorizing the separated oil to obtain the
stable oil without purification.

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8. The process according to Claim 7, which
further comprises grinding the biomass prior to contact
with the carrier oil to reduce particle size in order
to break cell walls of the microorganisms and to
25 thereby increase contact surface area between the
carrier oil and the biomass.

9. The process according to Claim 7, which
further comprises contacting the biomass under high
30 pressure with the carrier oil, and separating the oil
containing the long-chain polyunsaturated fatty acid
from the biomass residue by pressing and filtration.

10. The process according to Claim 7, which
35 further comprises grinding the biomass in the presence
of the carrier oil under gentle conditions, at a
moderate temperature, and under an inert atmosphere.

11. The process according to Claim 7, which is carried out under a nitrogen atmosphere and in the presence of one or more tocopherols in an amount sufficient to protect the LC-PUFAs from oxidative
5 degradation.

12. The process according to Claim 7, wherein the deodorizing is achieved by molecular distillation or steam distillation, optionally assisted by vacuum.
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13. The process according to Claim 7, which further comprises a final filtration of the stable oil to remove fine biomass particles.

14. The stable oil obtained by the process of Claim 7.
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15. A product containing a stable oil according to Claim 14, wherein the stable oil contains no more
20 than 10% by weight of LC-PUFAs.

16. The product of Claim 15 wherein the product is an infant foodstuff, a nutritional composition, a cosmetic composition in dry or emulsion form, or a
25 foodstuff.

17. A product containing a stable oil according to Claim 1, wherein the stable oil contains no more than 10% by weight of LC-PUFAs.
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18. The product of Claim 17 wherein the product is an infant foodstuff, a nutritional composition, a cosmetic composition in dry or emulsion form, or a
35 foodstuff.

19. An animal feed containing the biomass residue obtained by the process according to Claim 7.